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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,471	03/21/2005	Steven Joseph Wantling	B22-2523	4382
33349 7590 05/29/2008 HEXION SPECIALTY CHEMICALS, INC. 1600 SMITH STREET, P.O. BOX 4500 HOUSTON, TX 77210-4500				
EXAMINER CORDRAY, DENNIS R				
ART UNIT 1791		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,471

Applicant(s)

WANTLING ET AL.

Examiner

DENNIS CORDRAY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 20-25 and 28-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 26, 27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/88)
Paper No(s)/Mail Date 3/21/05, 4/12/05, 4/13/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-19 and 26-27, drawn to a composition comprising at least one wax, an alkyl phenol, at least one surfactant, polynaphthalenesulfonic acid, an alkali metal hydroxide and water.

Group I, claim(s) 1-19, 26 and 27, drawn to an emulsion.

Group II, claim(s) 20-25, drawn to a method of making an emulsion.

Group III, claim(s) 28-30, drawn to a method of making a gypsum/wood fiber article comprising an emulsion.

Group IV, claim(s) 31-44, drawn to a product comprising a wax emulsion.

The inventions listed as Groups I to IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The feature common to all groups is an emulsion comprising a wax, an alkyl phenol, a surfactant, polynaphthalenesulfonic acid, an alkali metal hydroxide and water. The wax emulsion is disclosed in Imai, 5120355 (see Abs; col 1, lines 45-52; col 3, line 54 to col 4, line 16; col 4, lines 60-64; col 5, lines 4-5, 22-28 and 47-51).

During a telephone conversation with Lisa Jones on 5/20/2008 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-19, 26 and 27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-25 and 28-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product

claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Oath/Declaration

The oath or declaration submitted 3/21/2005 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,12-14 and 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Imai (5120355).

Imai discloses an emulsion comprising water, one or more waxes (a) having a melting point of 50-90 °C (122 to 194 °F), a hydrocarbon resin (b) (which is in some embodiments an alkyl polyphenol), a salt of a condensation product of β -naphthalene sulfonic acid with formalin (c) (polynaphthalenesulfonic acid), a polyacrylic acid salt (d), an alkali metal hydroxide (e), and a wax dispersant (construed by the Examiner to be a surfactant). The waxes can be a hydrocarbon wax, an oxygen containing wax such as montan or caruba (saponifiable waxes) or a mixture of the waxes (Abs; col 1, lines 45-52; col 1, line 67 to col 2, line 2; col 2, lines 31-32; col 3, line 54 to col 4, line 16; col 4, lines 60-64; col 5, lines 4-5, 22-28 and 47-51; Claim 15). Alternatively, Imai discloses that the naphthalene sulfonic acid-formalin condensation product functions as an emulsifying agent (acts as a surfactant) and that a mixture of two or more having different structures can be used, thus the emulsion also comprises a surfactant (col 4,

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line 60 to col 5, line 9). Note that the open claim language permits the inclusion of additional additives, such as polyacrylic acid salts.

Regarding the amounts of each component in the composition, Imai discloses the following guidelines: a weight ratio of (a) + (b) to (c) + (d) of 1:0.01-0.2; a weight ratio of (a) to (b) of 1:0.1-2; a weight ratio of (c) to (d) of 1:0.1-1; a weight ratio of (a) + (b) + (c) + (d) to (e) of 1:0.01-0.1; an amount of surfactant of 1% or less by weight of the amount of (a) thru (e); an amount of 150 pts or less of saponifiable waxes to 100 parts hydrocarbon wax; an amount of water of 0.8 to 10 times the amount of the above components (col 3, lines 47-53; col 5, lines 34-62). The guidelines embody compositions within the claimed ranges. For example, the following composition is embodied and also falls within the claimed ranges:

Component	parts by weight	% of emulsion
(a1) hydrocarbon wax	200	32.4
(a2) saponifiable wax	30	4.9
(b) alkyl polyphenol	50	8.1
(c) polynaphthalenesulfonic acid	20	3.2
(d) polyacrylic acid	10	1.6
(e) alkali hydroxide	4.5	0.7
Surfactant	3.1	0.5
<u>Water</u>	<u>300</u>	<u>48.6</u>
TOTAL	617.6	100

Imai discloses that the composition is useful as a water repellent composition for gypsum board, gypsum plaster, cements, paper and fibers (col 6, lines 12-18).

Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai in view of Song (6010596) and Wantling (6165261).

Imai is used as above. Imai does not disclose the claimed surfactant species.

Song discloses a gypsum-wood fiber board having improved water resistance comprising an aqueous wax emulsion containing a paraffinic wax having a melting point from 40-80 °C (104-176 °F), montan wax (a saponifiable wax), a cationic surfactant or emulsifier, calcium sulfate and host particles, polyvinyl alcohol, emulsifiers, stabilizers and water. The host particles are preferably wood fibers. The montan wax is used in an amount from 1 to 200 parts per 100 parts paraffinic wax. Conventional emulsifiers used include sorbitan fatty acid esters, polyoxyethylene sorbitan fatty acid esters, and a cationic surfactant, which are employed in an amount of 0.1 to 5% by weight of the emulsion. Conventional stabilizers added include alkali metal hydroxides and are used in an amount of 0.1 to 1% by weight of the emulsion. The polyvinyl alcohol is used in an amount from 1 to 50 parts per 100 parts paraffinic wax. Water forms 35% to 80% of the emulsion, thus the waxes, surfactants, stabilizers and polyvinylalcohol form from 20% to 65% of the emulsion (Abs; col 1, lines 4-11; col 3, lines 55-67; col 4, lines 1-8 and 20-45; col 7, lines 30-65; col 8, lines 3-22).

Wantling discloses water resistant gypsum board comprising a wax emulsion containing, by weight of the emulsion, about 25% to about 50% of a slack wax generally

having a melting point from 110 to 140 °F, 1-20% a microcrystalline wax, about 1 to about 10% of a naphthenic oil, about 0.5% to about 10% of an emulsifier, about 0.05% to about 5% of a dispersing agent and water. The claimed sorbitan fatty acid esters and polyoxyethylene sorbitan fatty acid esters are disclosed. In an example, sorbitan monostearate and polyoxyethylene sorbitan monostearate are each used in an amount of 2.5% by weight of the emulsion (Abs; col 1, line 48 to col 2, line 13; col 3, lines 4-8; col 4, lines 33-39; col 5, lines 14-29, Example 1).

The art of Imai, Song, Wantling and the instant invention is analogous as pertaining to water repellent compositions used in gypsum, gypsum-fiber, paper and fiber containing products. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed surfactants in the composition of Imai in view of Song and Wantling as conventional surfactants well known in the art for such compositions.

Claims 15-19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai in view of Bates et al (5972094) and further in view of Kerr (3022184).

Imai is used as above. Imai does not disclose using the claimed starches.

Bates et al discloses a paper sizing composition comprising a thermoplastic resin, such as a hydrocarbon resin or amide wax, an anionic surfactant and a starch (Abs; col 3, lines 44-49 and 65-67; col 4, lines 1-3 and 39-46). Suitable surfactants include condensed salts of naphthalene sulfonic acid that are well known in the art (col 8, lines 47-53). The hydrocarbon resin can be a polyalkylene wax (hydrocarbon wax)

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(col 6, lines 53-54; col 7, lines 20-27). Suitable starches include unmodified starch, oxidized starch, anionic starch (acid modified), hydroxyethylated starch and cationic starch (col 8, lines 5-23). The starch assists in the dispersal and stability of the aqueous composition (col 7, line 62 to col 8, line 1).

Bates et al does not disclose borate or molybdenum starch complexes.

Kerr discloses forming a complex between starch and a polyborate to give a relatively neutral compound, reduce the drying time of starch containing sizes, and reduce tendency of the sizes to congeal into irreversible gels (col 3, line 13 to col 4, line 18). In an example, the ratio of polyborate to starch is 2:20-25, which is within the claimed range (cols 5-6. Examples 1 and 2).

The art of Imai, Bates et al, Kerr and the instant invention is analogous as pertaining to starch containing compositions used in gypsum, gypsum-fiber, paper and fiber containing products. Imai teaches that wax emulsions can be used for treating gypsum, paper and fiber containing products. It would have been obvious to one of ordinary skill in the art to use a modified or unmodified starch, or a complex of starch and a polyborate, in the wax composition of Imai in view of Bates et al and further in view of Kerr to assist in the stability of the wax composition.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

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F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 14-19 and 26-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11, 2, 4, 6-8, 18 and 19 of copending Application No. 10/525912 in view of Imai. The composition of the copending application is a species of the composition of the instant claims. One of ordinary skill in the art would have found it obvious to add a surfactant to the composition of the copending application in view of Imai, as discussed in the rejection of Claim 1 herein.

Claims 1-4, 14-19 and 26-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11, 2, 4, 6-8, 18 and 19 of copending Application No. 10/525917 in view of Imai. The composition of the copending application is a species of the composition of the instant claims. One of ordinary skill in the art would have found it obvious to add a surfactant to the composition of the copending application in view of Imai, as discussed in the rejection of Claim 1 herein.

This is a provisional obviousness-type double patenting rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wantling et al (6585820) teaches other water resistant compositions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

/Dennis Cordray/

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Examiner, Art Unit 1791